SECTION 2.

Proposed Action and Alternatives

SECTION 2

Proposed Action and Alternatives

This section describes the Proposed Action and Alternatives that were developed by SFPP after a detailed review of the existing route and potential expansion alternatives: (1) the Proposed Action, (2) Applicant Proposed Impact Avoidance and Minimization Measures, (3) Alternatives Considered but Eliminated from Further Analysis, and (4) the No Action Alternative.

2.1 Proposed Action

The Proposed Action is the installation of approximately 167 miles of 16-inch-diameter pipeline and 66 miles of 12-inch-diameter pipeline adjacent to existing 8- and 12-inch-diameter pipelines. The replacement segments traverse three states: Texas, New Mexico and Arizona. The Proposed Action also would include a breakout station, pump stations, terminals, valves, and meters. Location maps illustrating the proposed route can be seen in Figures 2.1-1 to 2.1-3. SFPP has determined that no new upgrades, repairs, or reconditioning will be required on the existing pipelines to allow operation of the new pipeline systems under new operating conditions.

The Proposed Action has been reviewed and conforms to the BLM Resource Management Plans (RMPs) identified below:

- Mimbres Resource Area, RMP, April 1993
- Final Safford District RMP and Environmental Impact Statement, August 1991

2.1.1 Description of Proposed Pipeline Replacement Segments

This section describes the location of the proposed pipeline segments and ancillary facilities in relation to the existing 8-inch and 12-inch pipelines, as well as the Union Pacific Railroad (UPRR) and adjacent highways. The mileposts referenced for Segments 2, 3, and 4 are based on the existing 12-inch pipeline from El Paso to Tucson and the 8-inch and 12-inch pipelines from Tucson to Phoenix, Arizona. The mileposts referenced for Segment 1 are based on the origin of the new pipeline. The mileposts listed are for reference only and may not correspond to the mileposts along the existing and/or proposed pipelines.

2.1.1.1 Segment 1

Segment 1 (Figure 2.1-1) is defined as the Diamond Junction to Breakout Segment and includes the installation of a new 16-inch pipeline between milepost (MP) 0.00 at the existing Diamond Junction facility and MP 6.20 at the proposed breakout facility, totaling 6.2 miles. From Diamond Junction, the proposed pipeline follows existing pipelines northwesterly through Fort Bliss. After approximately 5.5 miles, the line crosses the UPRR and terminates at the proposed breakout facility.

FIGURE 2.1-1
Location Map-Texas

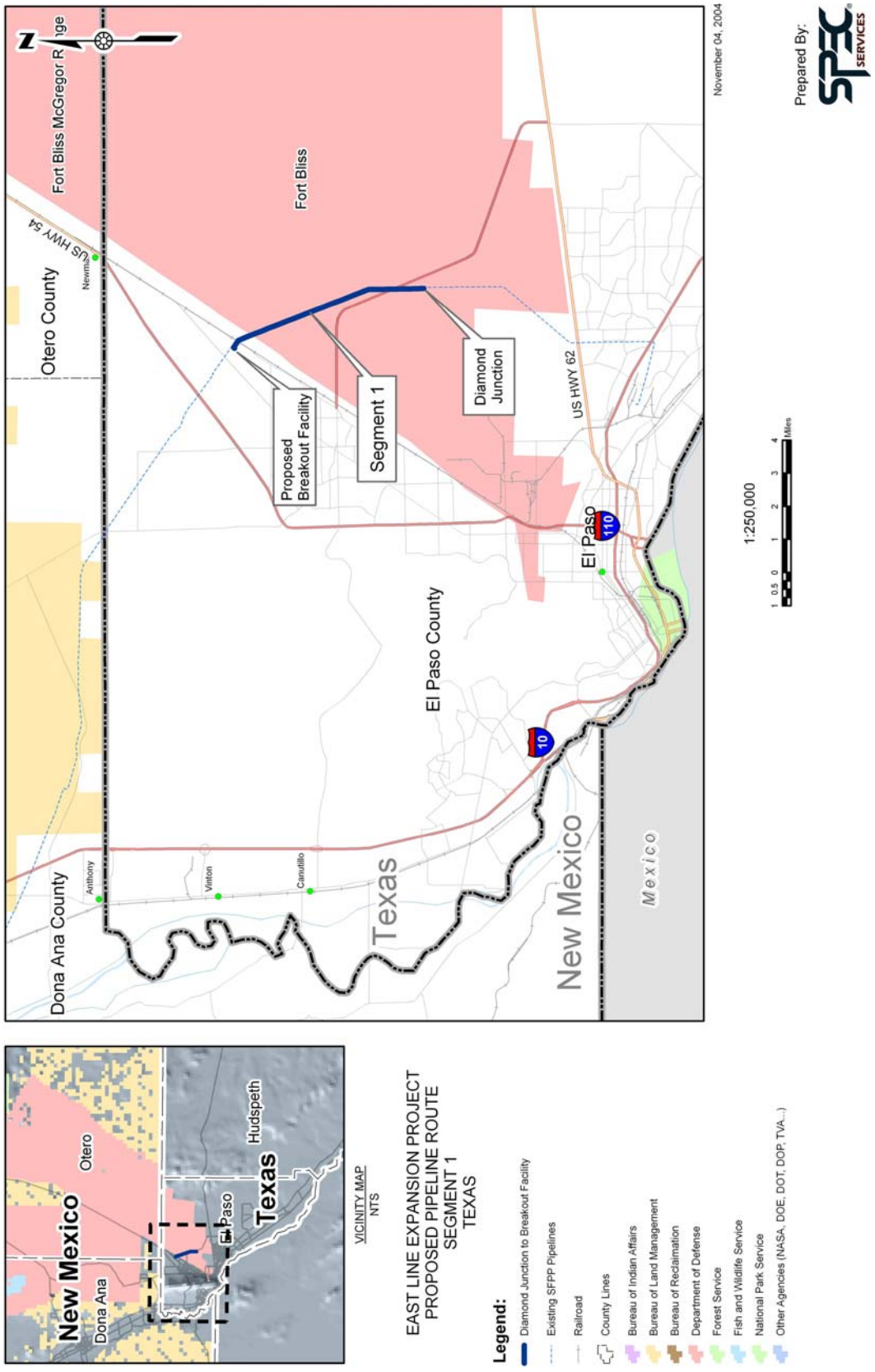
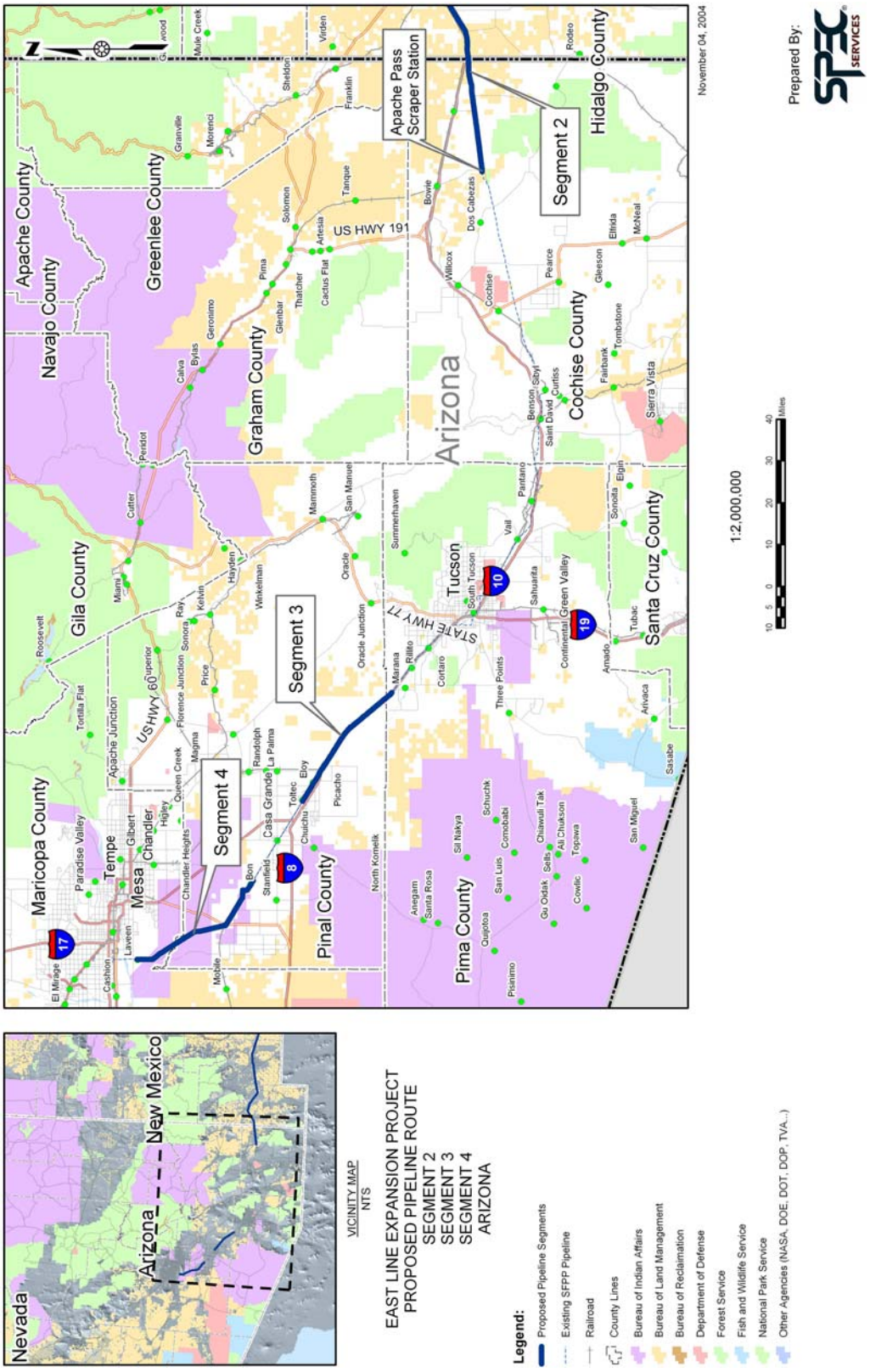


FIGURE 2.1-2
Location Map New Mexico

FIGURE 2.1-3
Location Map Arizona



2.1.1.2 Segment 2

Segment 2 (Figures 2.1-2 and 2.1-3) is defined as the Afton to Apache Pass Segment and includes the portion of the proposed 16-inch pipeline between MP 46.7 and MP 207.8 at the Apache Pass Valve Station, totaling 161 miles. Segment 2 is the only segment that extends between two states. Segment 2 begins in New Mexico and crosses the New Mexico/Arizona border at MP 184.6. The proposed pipeline follows existing pipelines along the north side. After approximately 25 miles, the line runs parallel to the UPRR for another 13 miles; at this point, it also parallels Interstate 10 (I-10). The line generally continues to follow the I-10 and UPRR corridor until separating for the last 23 miles, continuing along the existing pipeline to the Apache Pass Valve Station. There is one short, alignment reroute in the area of the Deming Station. This corridor is currently occupied by multiple El Paso Natural Gas and SFPP pipelines.

2.1.1.3 Segment 3

Segment 3 (Figure 2.1-3) is defined as the Marana to Toltec Segment and includes the portion of the proposed 12-inch pipeline between MP 335.8 and MP 367.07 (at the Toltec Pump Station), totaling 31.2 miles. This segment runs adjacent to I-10 and the UPRR corridor.

2.1.1.4 Segment 4

Segment 4 (Figure 2.1-3) is defined as the Bon to Dobbins Road Segment and includes the portion of the 12-inch pipeline between MP 386.81 (Bon) and MP 421.61 (Salt River), totaling 34.8 miles. The proposed route follows the existing pipeline except for a reroute through the City of Maricopa, Arizona, to avoid UPRR property. A large portion of this segment is within the Gila River Indian Community (GRIC). This segment crosses the Gila River.

2.1.2 Ancillary Facilities

Ancillary facilities to be constructed or modified include a new breakout facility, four existing pump stations, two existing terminals, new and existing valves as needed, cathodic protection test stations, and pipeline markers.

2.1.2.1 Breakout Facility

A new 35-acre breakout facility would be installed at approximately MP 6.2 (Figure 2.1-4). The facility would receive product from three inbound pipelines, accumulate the product in the tanks and ship product out on two outbound pipelines. Temporary storage and pumping would be the main activities at this terminal. New water, sewer, and electrical service would be installed to this facility.

Power to the El Paso breakout facility would be supplied by El Paso Electric via a 13.8-kilovolt (kV) system that originates at the El Paso Electric Milagro Substation located near the intersection of Electric Avenue and Fairbanks Drive in El Paso, Texas.

The system consists of existing 13.8-kV feeders that run for approximately 3,000 linear feet (lin ft) north along Electric Avenue. At the intersection of Electric Avenue and Donald Drive, the system turns east, runs adjacent to Donald Drive and turns northeast at the intersection of Donald Drive and Railroad Drive. The portion of the system that runs

adjacent to Donald Drive is approximately 9,500 feet in length. With the exception of approximately 1,500 feet of wire near the Shearman Substation, all wire along this portion of the route is new.

At the intersection of Donald Drive and Railroad Drive, the new wiring is connected to existing wiring that runs adjacent to Railroad Drive. The system runs northeast along Railroad Drive until it intersects the property on which the El Paso breakout facility will be constructed. The length along Railroad Drive is approximately 8,750 feet long. Of this length, approximately 4,300 feet of wire starting at the intersection of Railroad Drive and Donald Drive exists. The remainder of the system into the breakout facility is new wiring.

2.1.2.2 Pump Stations and Terminals

There are six pump stations and terminals along the existing East Line pipeline system: El Paso Station, Deming Station, Lordsburg Station, Tucson Terminal, Toltec Station, and Phoenix Terminal.

Four pump stations and two terminals would be upgraded as part of this project to accommodate the increased capacity resulting from the proposed pipeline upgrades to a 16-inch-diameter pipe. The El Paso Station would require modification of its pumps; Deming Station would require pump upgrades and new electrical service; Tucson Terminal would require pump upgrades, metering, and piping upgrades and new electrical service; Phoenix Terminal would require metering and piping upgrades; and Lordsburg and Toltec would be decommissioned.

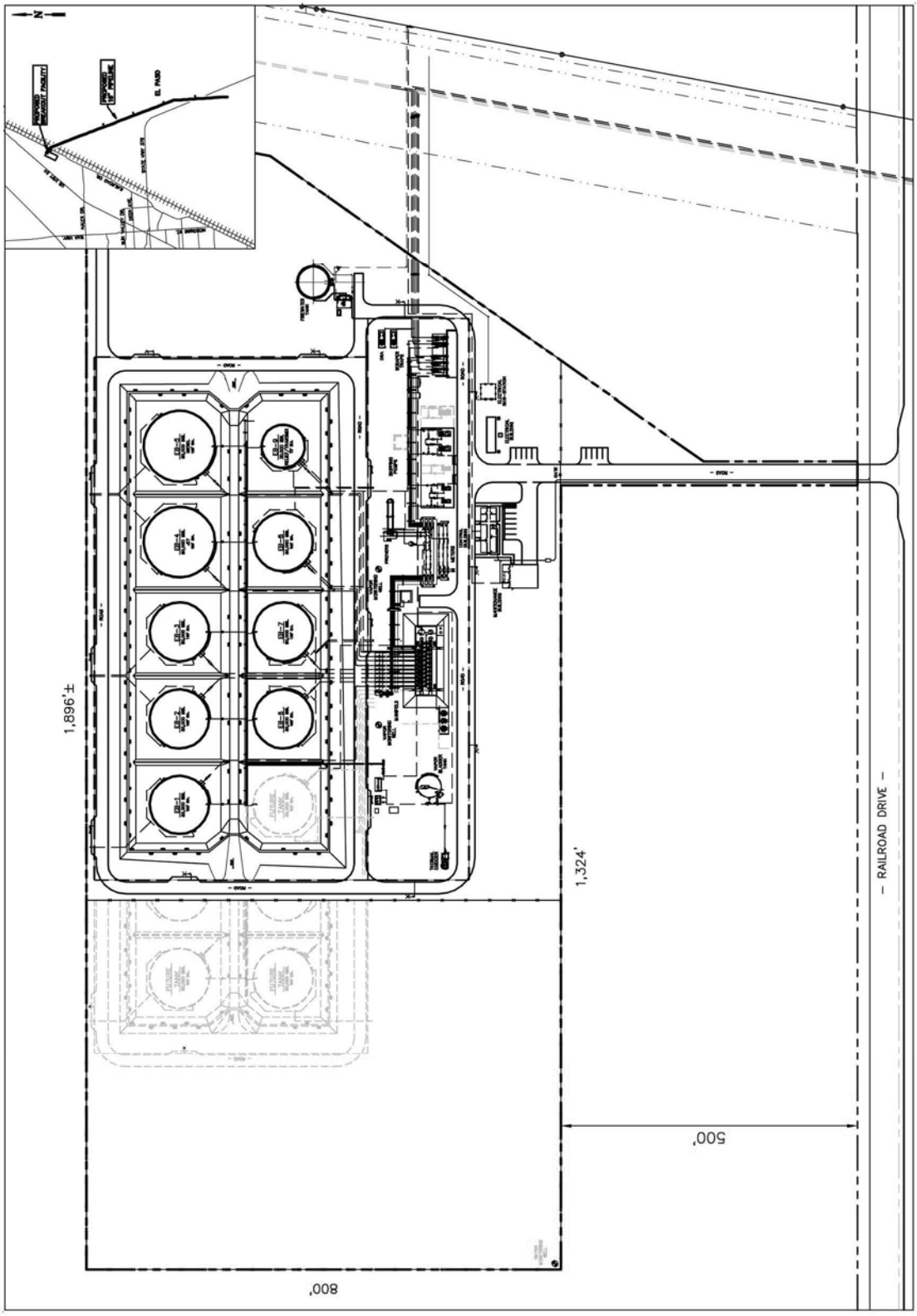
Power to the Deming Pump Station would be supplied by Public Service Company of New Mexico (PNM) via a new 115-kV power line that originates at the point where the new 16-inch pipeline intersects an existing 115-kV transmission system near the PNM Mimbres Substation in Deming, New Mexico. The 115-kV power line would be routed from this point approximately 4.5 miles to the Deming Pump Station. The power line route is adjacent and parallel to the proposed route for the new 16-inch pipeline.

Power to the Tucson Terminal would be supplied by Tucson Electric via a new 46-kV power line that would originate at an existing 46-kV line that runs parallel to Contractor's Way near the project site. The 46-kV power will be routed from this point approximately 160 feet due east to the northeast corner of the SFPP Tucson Terminal. The new power line would traverse railroad ROW before it crosses on to SFPP property.

2.1.2.3 Mainline Valves

Mainline valves are "welded-end" (i.e., no flanged or bolted connections) steel body valves that are used to isolate the pipeline for operation, maintenance, and emergency purposes. Mainline block valves are gate valves with gear operators that allow authorized pipeline workers to close and open the valve when needed. Mainline check valves are non-operated, one-way flow valves that prevent product from backflowing through the pipeline typically installed at the bottom of a significant hill. The valves are designed and manufactured to the requirements of 49 CFR Part 195, ANSI B31.4, API 6D and SFPP specifications.

FIGURE 2.1-4
Breakout Facility



Title 49 CFR Part 195 requires that liquid pipelines have sectionalizing valves throughout the length of the pipeline. The spacing requirements are a function of the pipeline's location and its proximity to sensitive environments as defined in 49 CFR §195.260. Given that much of the proposed alignment follows an existing pipeline that meets or exceeds those requirements, the valves for the proposed pipeline would be placed at or near those existing valve locations where feasible. In addition, new valves would be installed on the pipeline to reduce the distance between existing valves for operational and maintenance reasons.

A summary of new valve installation for each new segment follows:

Segment 1:	2 – Mainline Block Valves
Segment 2:	20 – Mainline Block Valves 6 – Mainline Check Valves
Segment 3:	2 – Mainline Block Valves
Segment 4:	5 – Mainline Block Valves

2.1.2.4 Scraper Stations

Two scraper stations, used for launching and receiving cleaning and inspection "pigs", would be installed at the start point and end point of Segment 2 of the proposed project. The stations are referred to as the Afton Scraper Station (MP 46.7) and Apache Pass Scraper Station (MP 207.8). New electrical utilities would be installed to the Apache Pass Scraper Station only.

2.1.2.5 Cathodic Protection Test Stations

To maintain and monitor the mechanical integrity of the pipeline, cathodic protection test stations would be installed at approximately 1-mile intervals. The test stations are used to measure the electrical potential between the pipe and the surrounding soil. These potential readings are used to determine the amount of electrical current required to be induced on the pipeline to mitigate the possibility for corrosion.

Test stations are typically installed aboveground within the pipeline ROW using a pipe topped by a small terminal box. The test leads (wires) are secured to the pipe underground and terminated at the test station, and are installed as required by 49 CFR §195.244.

The cathodic protection system will draw power from existing rectifiers now protecting the existing 8- and 12-inch pipelines. The new pipelines will be bonded to the existing pipeline to ensure a common bond and adequate distribution of current across all pipelines on the electrical circuit. No new power lines are needed to protect the new pipeline system. In general, cathodic protection test stations and appurtenances will not be fenced but will be located in an area that does not interfere with the use of the land and provides optimum protection from third-party damage.

2.1.2.6 Pipeline Markers

Pipeline markers will be installed to mark the approximate location of the pipeline centerline at 500-foot intervals so that they are clearly visible along the route. The yellow sign is posted approximately 4 feet above ground on a steel flange channel post with baked

on yellow enamel finish. Figure 2.1-5 contains a detailed drawing with dimensions. In addition, markers will be placed at road, railroad, waterway, and foreign line crossings, and other places where excavating activities are likely as required by 49 CFR §195.410. The required size, color, and words shown on the markers are specified in 49 CFR §195.410.

2.1.3 Description of Construction Activities

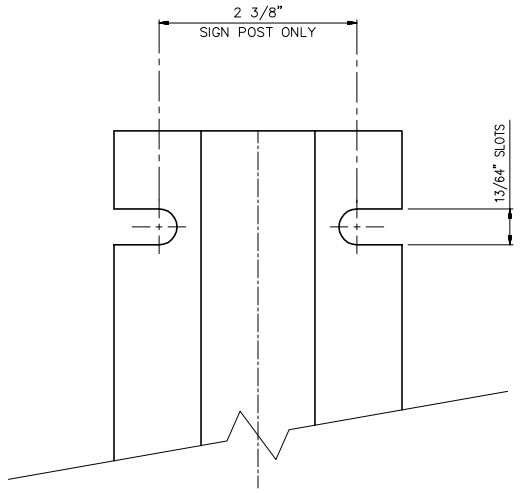
Temporary construction workspace or easements would typically be 100 feet wide while new permanent easements across public lands would be 30 feet wide. Some areas along the ROW would require workspace wider than 100 feet to allow for staging of materials or use of large construction equipment at highway and railroad crossings. Other areas would be less than 100 feet wide to avoid sensitive areas. A 200-foot-wide area along the entire project was examined for environmental clearance. All construction activities for the proposed breakout facility would occur within the 35-acre parcel. No additional workspace would be needed for the construction of this facility.

2.1.3.1 Preconstruction

The discussion of preconstruction activities outlined in the following paragraphs would be applicable to lands of all ownership types including federal, state, private, and/or tribal lands.

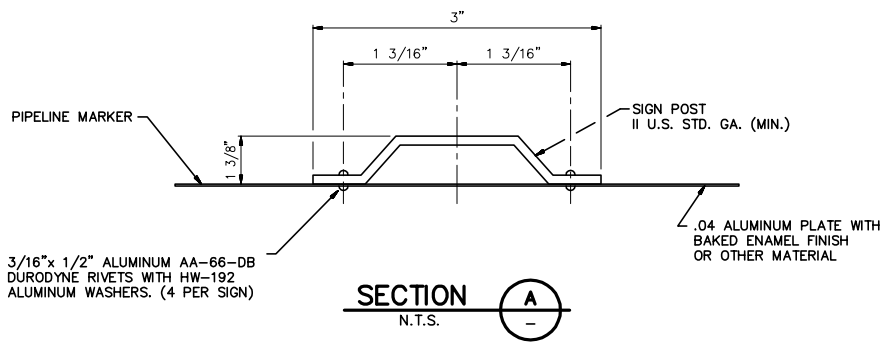
Staging Areas. Equipment, cable, and other construction material would be acquired from various vendors and stockpiled either at sites owned or leased by SFPP or in designated areas within the temporary construction easement. During the construction phase, materials for each day's activities would be stored in designated areas along the construction ROW. Upon cessation of construction activities in the evening and prior to any prolonged breaks in construction, heavy equipment would be secured along the ROW in a manner minimizing the threat to public safety, consistent with jurisdictional requirements. In roadways or in areas where pedestrian or vehicle traffic is present, provisions would be made to cover any open trenches to protect the public and wildlife.

Table 2.1-1 provides a nominal description of the location of the proposed laydown/staging areas in relationship to the existing 8-inch and 12-inch SFPP pipelines as well as the UPRR and adjacent highway ROWs. Pump stations and terminals also would be used for staging areas, including the proposed Breakout Facility, Deming Station, Lordsburg Maintenance Yard, Lordsburg Station, Toltec Station, Tucson Terminal, and Phoenix Terminal.



POST SLOT DETAIL
6 SLOTS REQ'D EACH POST

DETAIL 2
N.T.S.



SECTION A
N.T.S.

PIPELINE MARKER

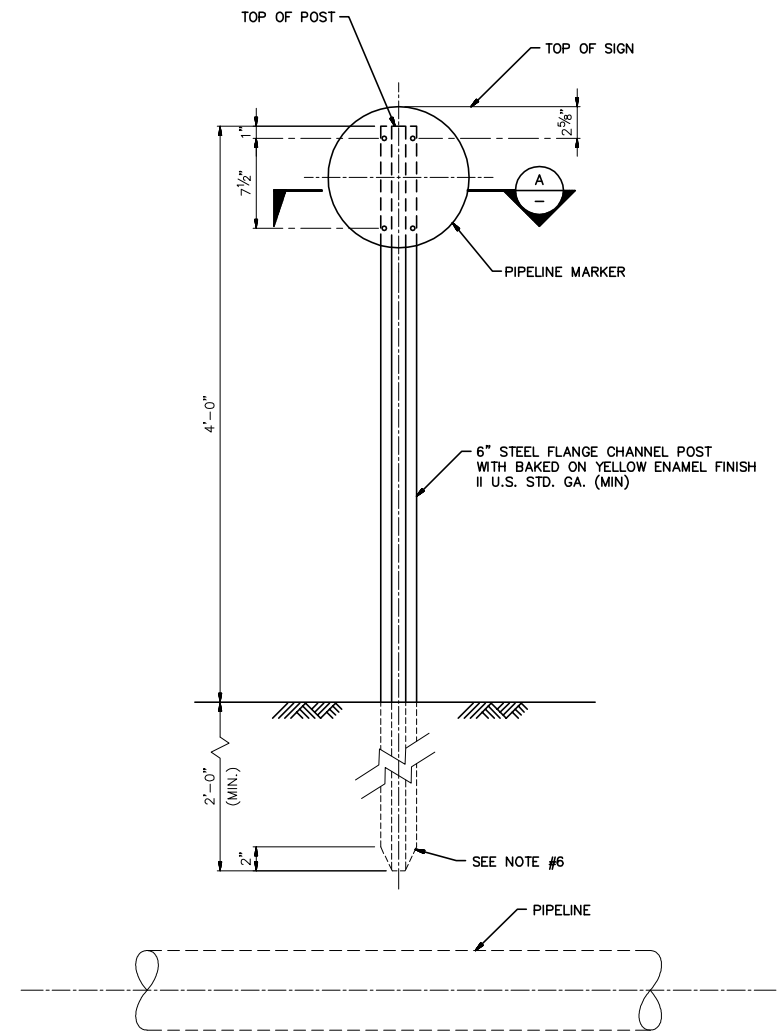
DETAIL 3
N.T.S.

FABRICATION NOTES

1. POSTS TO BE FURNISHED WITH FOUR SLOTTED HOLES AS INDICATED FOR ATTACHING PIPELINE MARKER.
2. PIPELINE MARKERS TO BE SUPPLIED WITH OR WITHOUT BLACK ARROW. FIGURES AND NUMBERS ON A YELLOW BACKGROUND.
3. PIPELINE MARKERS AND POSTS TO FURNISHED UNASSEMBLED. CONTRACTOR SHALL PROVIDE POP RIVETS AND GUN TO INSTALL SIGNS ON POSTS.
4. SIGN TO BE FURNISHED WITH FOUR HOLES AS INDICATED.
5. ARROW TO BE OMITTED ON SIGNS THAT ARE INSTALLED AT P.I.'S.
6. POSTS SHALL BE TAPERED ON ONE END TO FACILITATE DRIVING.

INSTALLATION NOTES

1. PIPELINE MARKERS TO BE LOCATED OVER PIPELINE WITH ARROW INDICATING THE ALIGNMENT OF THE PIPE. MARKERS LOCATED AT P.I.'S WILL HAVE NO ARROW.
2. MARKERS TO BE INSTALLED WITH SIGN FACING THE NORMAL TRAFFIC FLOW.



ELEVATION

DETAIL 1
N.T.S.

ISSUED FOR BID
JAN. 28, 2005

SPEC Services, Inc.
17101 Bushard Street
Fountain Valley, CA 92708
(714) 963-8077
K:\3100\ALIGN\GENERAL\3100_S912:8

NO.	DATE	DESCRIPTION	BY	CHECKED	APPROVED
A	01/28/05	ISSUED FOR BID	SPC	FIS	

REVISIONS

SFPP, L.P.
ORANGE CALIFORNIA

DRAWING TITLE: **STANDARD DETAIL**
JOB TITLE: **EAST LINE EXPANSION**
PIPELINE MARKERS DETAIL
LOCATION: **NEW MEXICO & ARIZONA**
OPERATING SYSTEM: **EL PASO TO PHOENIX**

FIELDBOOK XX			MAP REFERENCES		REF RECORD DWG NO: XXX-XXX-a.DWG
TWN	RNG	SEC	USGS QUAD	THOM. BROS.	CONSTRUCTION DRAWING NUMBER
			SERIES:7.5"	PAGE: XX	3100-S-912
DATE: 01/20/05			NAME:XX	GRID: X#	

TABLE 2.1-1
Staging Areas

MP	Description
Segment 1–Diamond Junction to Breakout	
0	Diamond Junction
6.2	Proposed Breakout Facility
Segment 2–Afton to Apache Pass	
51.75	Afton Pump Station (no longer a pump station)
79	Lot Adjacent to I-10
80.5	Lot South of Existing Pipelines
N/A	Lot West of Highway 418 (Old ARSCO Plant)
107.6	Deming Station–Adjacent Property
158.47	Lordsburg Maintenance Yard
N/A	Lot Adjacent to I-10 and Highway 70
N/A	Lot Adjacent to UPRR Railroad
162.8	Lot North of Existing Pipelines
Segment 3–Marana to Toltec	
339.1	Lot North of Missile Base Road
345.1	Lot North of Park Link Road
367.07	Lot East Toltec Road
Segment 4–Bon to Dobbins Road	
398.8	Lot North of Hwy 238

Access Roads. Access to the proposed project would be by existing access roads to the pipeline or road ROWs used for the project. New access roads may be required for the project and have been identified in Table 2.1-2. Ingress/egress routes for ROWs that are not within the disturbed corridor of an existing road would be marked or flagged. Some existing roads in isolated areas may require minimal repairs to make them usable for construction. Heavy equipment and materials such as pipe, fittings, and valves would be transported on access roads. After completion of the pipeline installation, access roads would be repaired, as necessary. Except as noted in Table 2.1-2, new impacts would be within previously disturbed areas.

TABLE 2.1-2
Access Roads

MP	Description	New / Existing
Segment 1–Diamond Junction to Breakout		
0.8	Dirt Road	Existing
1.5	Army Road (dirt)	Existing
1.6	Dirt Road Existing	Existing
2.7	Dirt Road Existing	Existing
5.8	Dirt Road Existing	Existing
Segment 2–Afton to Apache Pass		
46.7	Afton Scraper Station Access (gravel)	New
47.7	Dirt Road	Existing
49.4	County Road B-007 (dirt)	Existing
51.8	Afton Station Access (dirt)	Existing
52.9	Dirt Road	Existing
55.7	Dirt Road	Existing
55.8	Dirt Road	Existing
56.8	Dirt Road	Existing
58.2	Dirt Road	Existing
63.4	County Road B-005 (dirt)	Existing
64.4	Dirt Road	Existing
66.1	County Road B-004 (dirt)	Existing
69.9	Railroad Surface Crossing	New
76.1	Dirt Road	Existing
80.2	Dirt Road	Existing
84.2	Dirt Road	Existing
89.2	Railroad Surface Crossing	New
93.6	Railroad Surface Crossing	New
100.7	Aquarius Drive (dirt)	Existing
100.8	Country Club Road (dirt)	Existing
101.4	Poppy Drive NE (dirt)	Existing
101.5	Lily Drive (dirt)	Existing
101.8	San Carlos Street (dirt)	Existing
102.1	Diamond Avenue (dirt)	Existing

TABLE 2.1-2 (CONTINUED)
Access Roads

MP	Description	New / Existing
102.4	Silver City Highway (paved)	Existing
102.8	West Eighth Avenue (paved)	Existing
103.2	Dirt Road	Existing
103.8	Peru Mill Road (paved)	Existing
104.0	2nd Street/Highway 494 (paved)	Existing
105.2	Belgian Road (dirt)	Existing
107.6	Deming Station Access (dirt)	Existing
109.7	Dirt Road	Existing
112.6	Dirt Road	Existing
114.3	Dirt Road	Existing
116.5	Paved Road	Existing
122.0	Dirt Road	Existing
127.6	Dirt Road	Existing
130.6	Dirt Road	Existing
135.3	Dirt Road	Existing
142.6	Dirt Road	Existing
151.3	Dirt Road	Existing
156.1	Dirt Road	Existing
156.8	Paved Road	Existing
158.5	Lordsburg Maint Station Access (paved)	Existing
162.1	Paved Road	Existing
162.3	Animas Road (paved)	Existing
162.8	Highway 494 (paved)	Existing
164.6	Dirt Road	Existing
168.7	Dirt Road	Existing
173.7	Highway 338 (paved)	Existing
179.0	Highway 80 (paved)	Existing
183.3	Dirt Road	Existing
186.1	Cavot Road (gravel)	Existing
189.7	Dirt Road	Existing
190.2	Riley Road (dirt)	Existing

TABLE 2.1-2 (CONTINUED)
Access Roads

MP	Description	New / Existing
192.3	Portal Road (paved)	Existing
194.3	North Parker Road (dirt)	Existing
195.3	Wood Canyon Road (paved)	Existing
207.0	Old Fort Bowie Road (dirt)	Existing
207.9	Apache Pass Road (dirt)	Existing
207.9	Apache Pass Scraper Station Access (gravel)	New
Segment 3–Marana to Toltec		
339.2	Missile Base Road (paved)	Existing
341.2	Temporary Railroad Surface Crossing	New
341.8	Private Road (paved)	Existing
345.3	Park Link Road (paved)	Existing
353.3	Dirt Road	Existing
357.2	Picacho School Road (paved)	Existing
358.1	Oak Lane (paved)	Existing
358.2	Pine Avenue (paved)	Existing
358.4	Vail Road (paved)	Existing
359.7	Dirt Road	
360.9	La Palma Road (paved)	Existing
362.3	Sunshine Blvd./Alsdorf Road (paved)	Existing
362.6	Main Street (paved)	Existing
363.5	Eleven Mile Corner Road (paved)	Existing
363.9	Battaglia Road (paved)	Existing
365.7	Houser Road (paved)	Existing
367.3	Toltec Road (paved)	Existing
Segment 4–Bon to Dobbins Road		
389.0	Anderson Road (paved)	Existing
389.1	Maricopa Casa Grande Highway (paved)	Existing
390.2	Peters and Nall Road (dirt)	Existing
391.1	Murphy Road (paved)	Existing
392.3	Hartman Road (dirt)	Existing

TABLE 2.1-2
Access Roads

MP	Description	New / Existing
394.7	White and Parker Road (paved)	Existing
395.9	Porter Road (paved)	Existing
398.4	John Wayne Parkway (paved)	Existing
398.8	Garvey Road (paved)	Existing
399.2	Edison Road (paved)	Existing
399.7	Highway 238 (paved)	Existing
413.2	Beltline Road (paved)	Existing
415.9	Pecos Road (dirt)	Existing
417.6	51st Avenue (paved)	Existing

Marking the ROW and Survey Activities. Activities associated with project construction, operations and maintenance, as well as site restoration would be conducted within the authorized limits of the temporary construction easement and permanent ROW. Special or sensitive sites where construction equipment would not be allowed would be clearly marked before any construction or surface-disturbing activity begins. Construction personnel would be trained to recognize these markers and understand the equipment movement restrictions involved. Lath or flags would be maintained until final cleanup and/or reclamation is completed, after which they would be removed.

Construction zones would be marked with the appropriate warning signs and flags as required by federal, state, or local agencies having jurisdiction. Approved traffic control would allow continued access on important access roads.

Prior to and during construction, survey crews would collect field data required to finalize the construction design package and as-built package. These activities include but are not limited to

- Setting horizontal and vertical control for future coordinate basis
- Pipeline staking
- Staking of proposed facilities
- Surveying the installed pipeline

The duration of the surveys typically extends through the project design and permitting phase, construction phase, and project completion.

Site Preparation and ROW Clearing. Site preparation would not be necessary for areas within the cleared area of roads, cleared pipeline ROWs, and within roadways. Where installation occurs within the ROW but outside the cleared area, site preparation may include tree and brush removal and rock removal. Brush piles, chippings, and other cleared materials would be placed on the ROW to provide seed source and minimize off-highway vehicle traffic, or

disposed of at approved landfills, or other approved sites traditionally used for disposal of construction debris. A temporary fence section (gap) would replace sections of existing fences that need to be removed for access.

Access to the ROW would be accomplished by using existing and new maintenance roads along the existing SFPP pipeline ROW. Primary access to these roads would be via I-10 and other existing roads and highways.

The clearing operation would require the use of bulldozers to enhance the existing grade to facilitate the use of the ROW for transportation of construction equipment and materials. This process includes the removal of vegetation. Large yuccas would be avoided to the extent possible. Yuccas to be avoided would be flagged prior to ROW clearing.

Transportation of Materials and Equipment to Project Site. The materials and equipment that would be transported for the pipeline include but are not limited to the following:

- Line pipe
- Pipe fittings
- Valves
- Miscellaneous communications instruments
- Fencing panels
- Electrical and lighting equipment
- Construction consumables (e.g., welding material, paint, wrapping material)

Materials and equipment required for the pump stations and terminals would be staged at the stations. Line pipe would be offloaded along the ROW or would be staged at designated areas along the route. Other materials and equipment would be delivered on palettes and would be offloaded with a forklift or crane. Transport and offload equipment would be stored within the cleared ROW or a designated staging area.

Cranes or "sidebooms" would be used for the pipeline and station construction; however, the contractor would be responsible for permitting any special transportation requirements from the respective highway agencies.

New line pipe will most likely be transported by railroad from the pipe mill to a siding location at Deming, New Mexico and Peoria, Arizona. Most other material and possibly the 12-inch mainline pipe would be transported by truck to the contractor's construction yard. Since a siding location will be used to unload the pipe, no fence will be required to be removed. After unloading at the railroad siding and storage at the offloading yard, the pipe would be transported by truck for stringing on the construction ROW.

2.1.3.2 Construction/Pipeline Installation

The following construction/pipeline installation activities outlined would be applicable to the entire project. Figure 2.1-6 illustrates a typical construction spread in urban areas.

Ditching. Typically, a 5- to 6-foot-deep ditch is excavated. However, the depth of the ditch can vary when special conditions are encountered that require additional depth. A typical trench would be 24 to 36 inches wide. The ditch would be excavated using trenchers and tracked and/or wheeled backhoes. An exception to the mechanical excavation would be

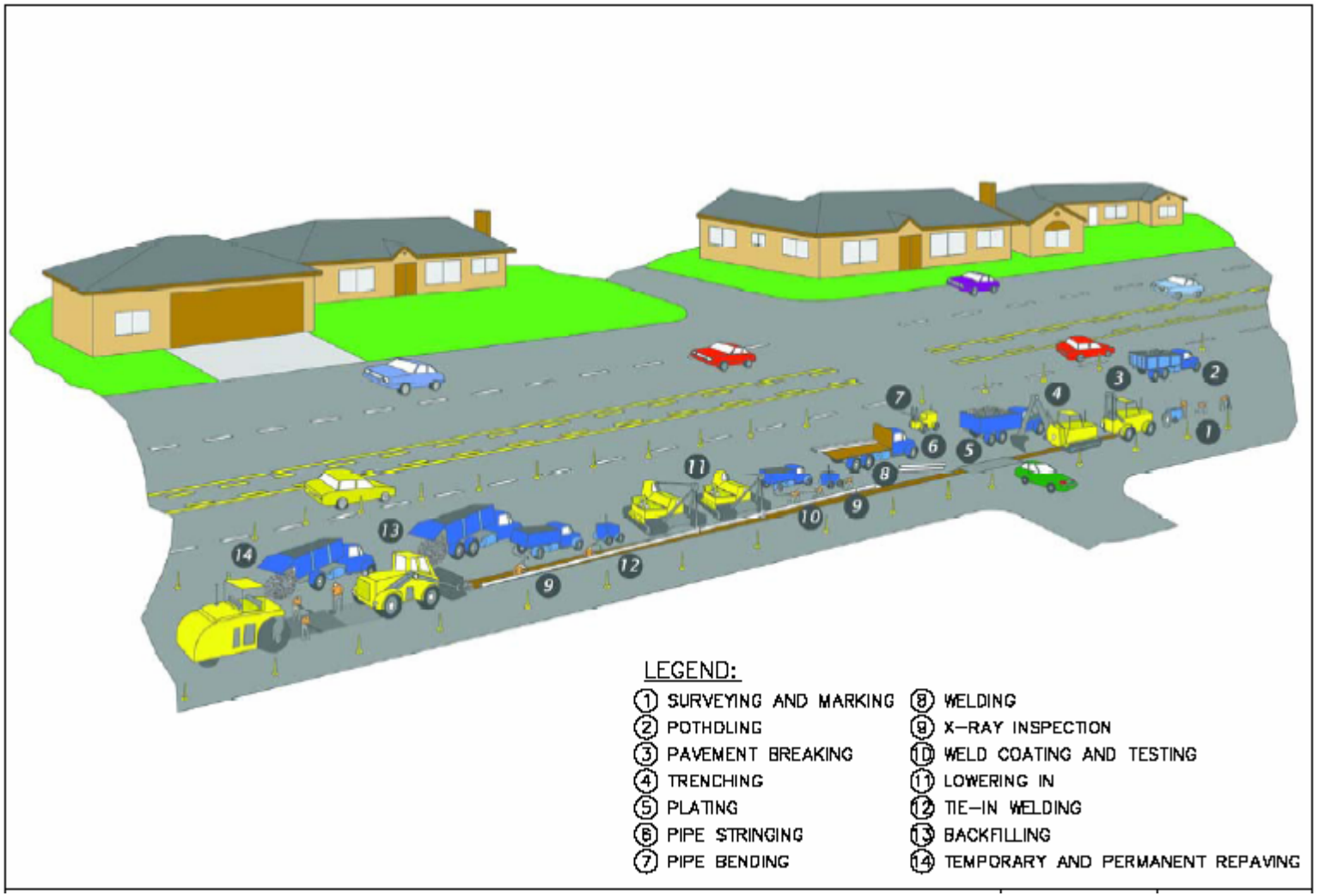


Figure 2.1-6 Typical Construction Spread in Urban Areas.

vacuum excavation or hand digging to locate buried utilities, such as other pipelines, cables, waterlines, and sewer lines. No blasting is anticipated. Water trucks would be used for dust control along the ROW for soil compaction. Figures 2.1-7 and 2.1-8 provide profiles of the temporary construction workspace in rural/desert areas and road and road shoulder areas, respectively.

The type of soils encountered would determine the type of equipment used for ditching. Harder soils such as caliche require larger trenchers and generally cannot be excavated using a backhoe.

Pipeline Handling and Stringing. Pipe would be transported and scheduled to be delivered along the pipeline ROW. The pipe would come in 40- to 80-foot lengths from the mill depending upon the specific requirements of the construction segment. Where sufficient space exists, pipe trucks would transport the pipe along the ROW, and sideboom tractors would unload the joints of pipe from the trucks and string them along the ditch end to end, ready for line-up and welding.

Construction ROW conditions may sometimes require pipe bends for which field bending would not be practical. In these cases, manufactured bends would be used. Where required, the pipe would be bent by a portable bending machine to fit the horizontal and vertical contour of the ditch.

Laying the pipe would involve use of special clamps that hold the pipe sections in position until the proper alignment is secured and welding can be performed. Following the line-up crew, the welding crew would apply the remaining weld passes to bring the thickness of the weld to more than the thickness of the pipe per Owner welding requirements.

Each welding crew would require a welding rig typically mounted on a pickup or flatbed truck. Each crew consists of a welder and a helper. The line-up crew utilizes a sideboom tractor to carry the internal line-up clamp. The crew consists of a sideboom operator and one or more laborers.

Pipe Coating. A protective coating would be applied on the pipe at the mill before delivery to the construction site. However, field coating would be necessary on all girth welds (joints) made at the site to provide a continuous layer of coating throughout the pipe. After the pipe has been welded and radiographically inspected (x-rayed), the uncoated girth weld is then coated with a heat shrinkable polyethylene sleeve, a field-applied fusion-bonded epoxy coating or alternatively, a primer and tape can be used as long as it provides adequate adhesion to the underlying coating and the bare pipe.

A detection test would be conducted along the pipe to determine if any coating discontinuities exist that could cause a concentrated point for corrosion. The testing device (holiday detector) generates an electrical potential between the pipe and an electrode in contact with the outside of the coating or ground. Pinholes in the coating of microscopic size can be located using the holiday detector. In the event pinholes or other damage to the coating is found, the testing crew would repair the coating by applying primer and tape, or other approved method of coating repair to securely cover the damage. All coated pipe, including field joints, fittings, and bends, would be tested and repaired as necessary. The pipe coating crew consists of two laborers. This crew typically utilizes a pickup truck to transport the coating materials.

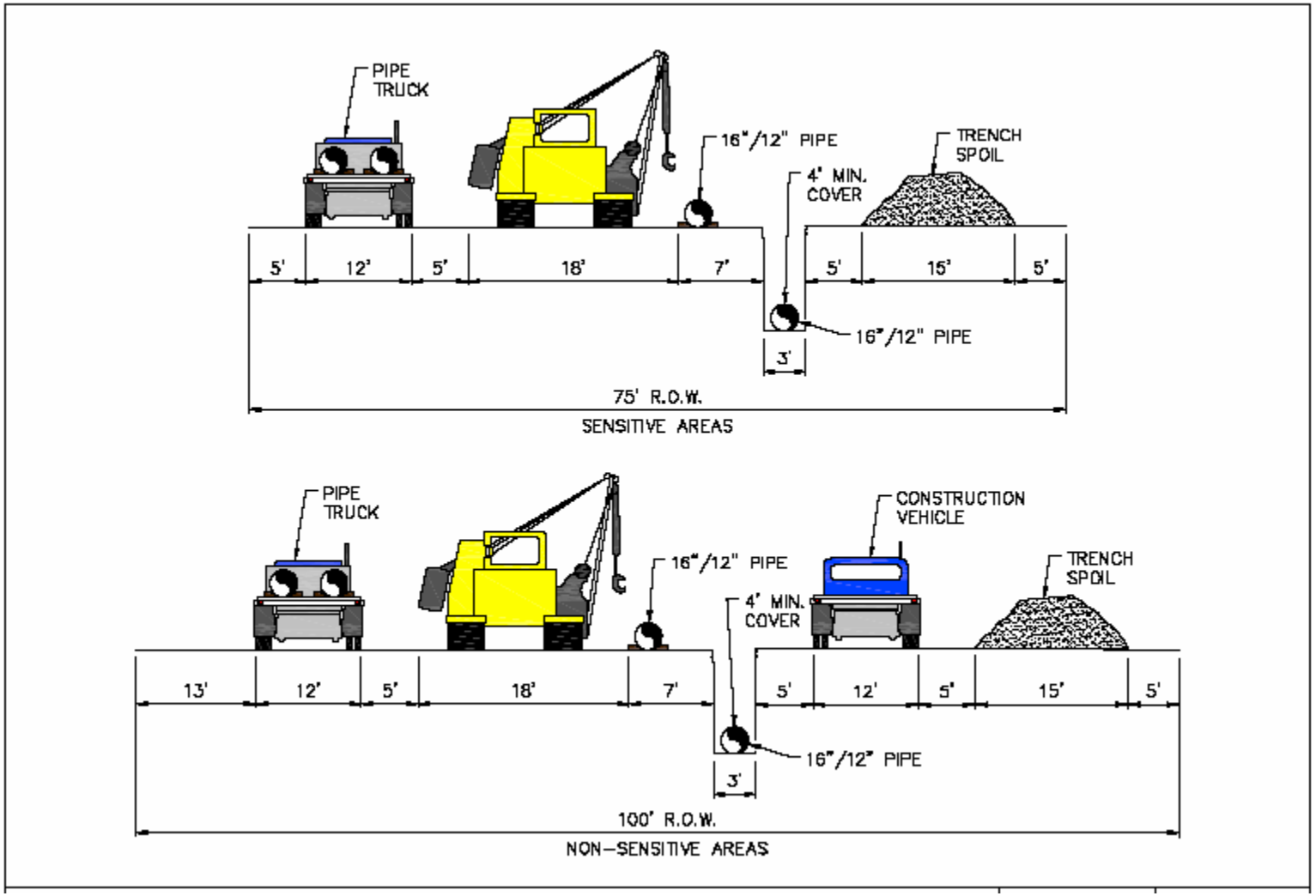


Figure 2.1-7 Temporary Construction Workspace in Rural/Desert Areas.

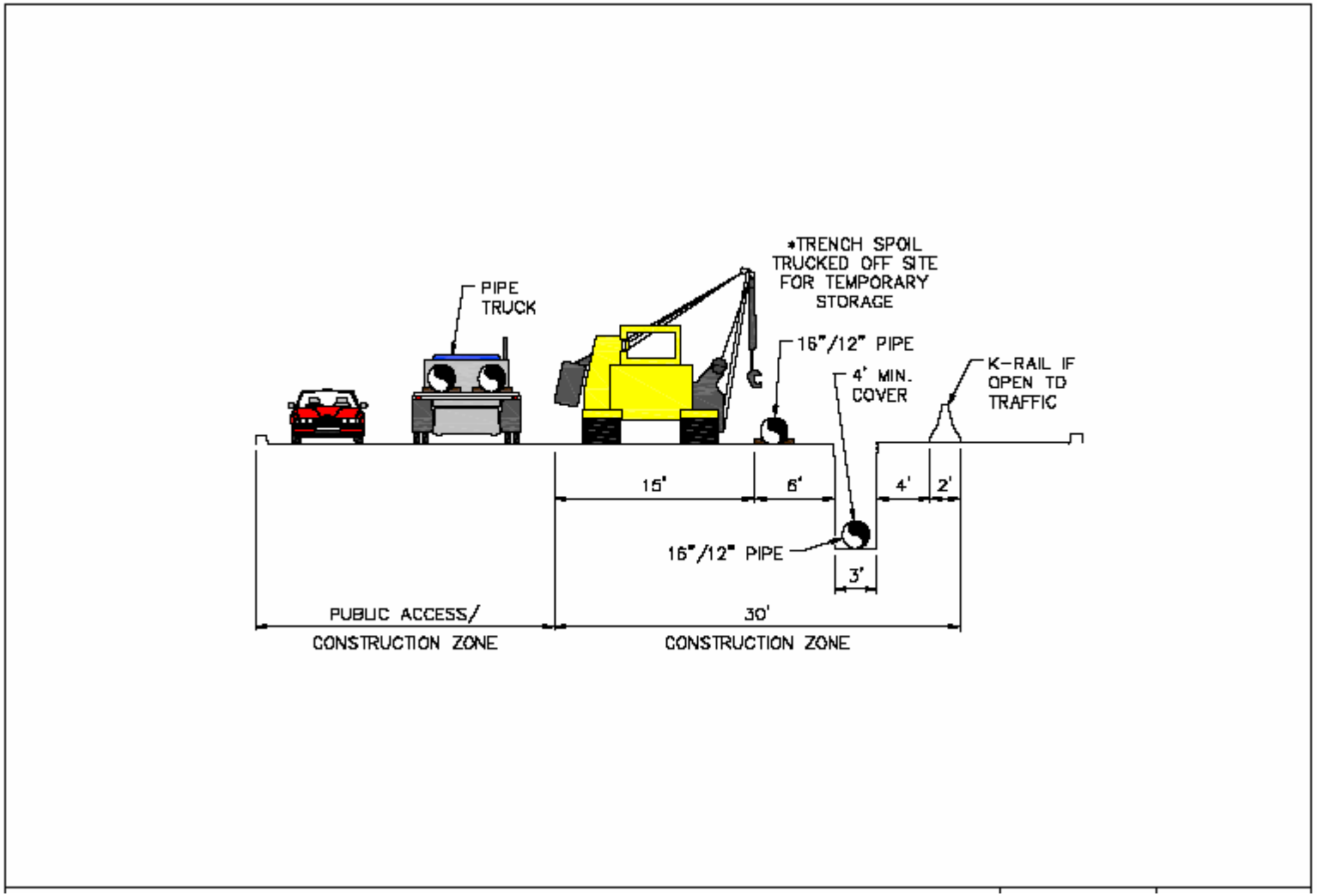


Figure 2.1-8 Temporary Construction Workspace in Road and Road Shoulder Areas.

Lowering and Backfilling. The pipe would be lifted and lowered into the ditch by sideboom tractors spaced so that the weight of the unsupported pipe would not cause mechanical damage. Cradles with rubber rollers or padded slings would be used so the tractors may lower the pipe without damaging the external coating as they travel along the ditch line. Ditch welds (tie-in welds) may be required whenever the ditch line is obstructed by other utilities crossing the pipe ditch. These welds would usually be made in the ditch at the final elevation, and each weld would require pipe handling for line-up, cutting to exact length, coating, and backfilling.

Backfill material would be obtained from the excavation ditch spoils. Spoils would generally be returned to the ditch soon after ditching. Figure 2.1-9 demonstrates a typical trench profile in earth and pavement. Spoils would be screened as the material is returned to the ditch using standard construction screening equipment such as a padder/shader. The pipe would be protected along the sides with a minimum of 12 inches of backfill also free of rocks. This zone is typically referred to as pipeline padding and shading. In certain areas where damage might occur to the pipe coating from abrasive soils, clean sand or earth backfill would be used to pad the pipeline. Any required padding material would be obtained from screened trench spoil or local commercial sources. The backfill remainder of the trench above the pipeline would be native material excavated during trenching.

At the time of backfilling, a colored warning tape is buried approximately 18 inches above the pipeline to indicate the presence of a buried pipeline to future third-party excavators.

In roadways, the backfilled soil would be compacted using a roller or hydraulic tamper before paving. When use of a mechanical device is not practical, sand slurry would be used as backfill to obtain the required compaction. Caliche or large rock material would be spread across the ROW or disposed of according to appropriate guidelines and landowner approval.

Cleanup and Restoration. The cleanup and restoration process would include removal of debris, construction signs, surplus material, and equipment from construction areas, followed by fence replacement, repaving of any disturbed roadways, and restoration of disturbed lands along the pipeline ROW. It also includes the daily removal of any trash left onsite. An archaeological monitor would be present to monitor during the soiling and screening process. Erosion and drainage control measures included in the Storm Water Pollution Prevention Plan (SWPPP) would be used where necessary to control erosion.

As part of this process, the ROW would be resurfaced so as to match the adjacent undisturbed grade ensuring that the normal drainage of rainwater is not compromised. Where reseeding is required, the ROW would be seeded with a certified weed-free native seed mixture not to exceed 15 pounds per acre.

Any range improvement such as fences or water lines that may be impacted would be restored to their original conditions by the contractor.

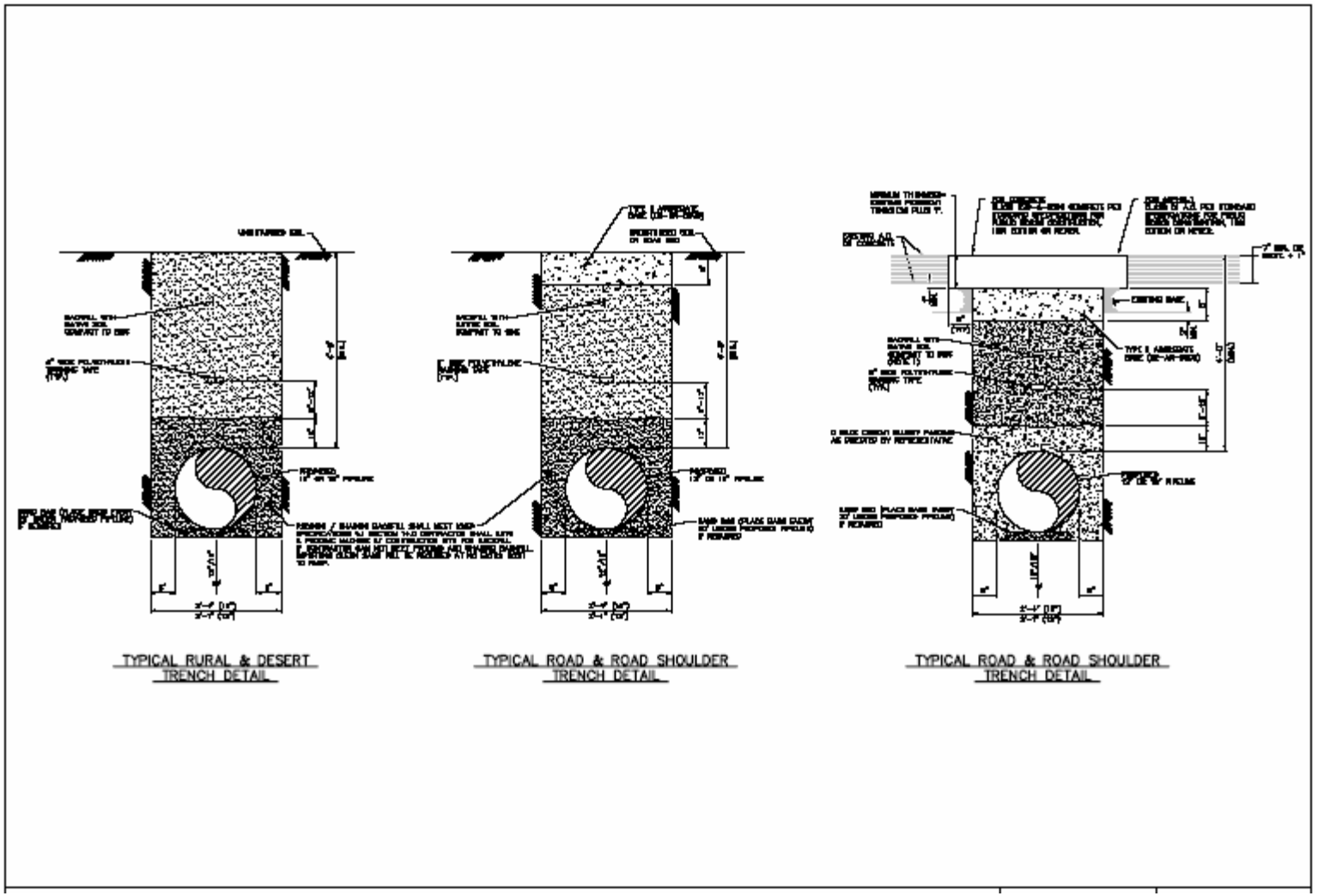


Figure 2.1-9 Trench/Backfill Profiles.

2.1.3.3 Highway Railroad and Waterway Crossing

The proposed pipeline would cross several roads, railroads, rivers, and canals. Special construction methods, such as direction drilling or boring, would be employed to make the crossing without impacting the use of the road, railroad, or waterway. Horizontal directional drilling would be used for some crossings, as well as slick boring and jacked boring methods. Horizontal directional drilling (HDD) refers to a steerable method of installing the pipe in a shallow arc underneath an obstacle. Conventional boring methods, slick and jacked, entail boring straight underneath a crossing from one end to the other. Coordination with the appropriate utility would occur prior to construction.

A conventional bore pushes pipe under the crossing obstacle from an entry bore pit to an exit bore pit. A conventional bore (cased or uncased) requires that a bore entry and exit pit be excavated to allow placement of the bore machine and tie-in of the pipe to the main pipe strings. Typically the entry bore pit is approximately 10-15 feet wide by 20-25 ft long to accommodate the bore machine and casing pipe. The exit pit is typically much smaller, 10 ft wide by 10-15 ft long since only a tie-in weld to the mainline pipe is required.

Equipment required for a conventional cased or non-cased (slick) bore would be a backhoe to excavate the pits, a bore machine consisting of a compact track mounted bore unit that pushes the casing or line pipe into the hole with hydraulic power, a small crane or boom truck to handle the casing and/or carrier pipe and a welding rig to weld the steel casing or line pipe inside the bore pit.

A drill bit is place in front of the pipe to remove the soil as the pipe is pushed by the bore unit. Typically the bit is sized only slightly larger than the pipe that will be pushed into the hole, therefore material removed is only the material displaced by the pipe itself. Excess material would be stored near the bore pit and would be used to back fill the excavated bore pits.

HDD uses a bore machine to drill under an obstacle. An initial pilot hole is drilled using special drill pipe and enlarged by subsequent passes. The carrier pipe is installed into the completed drill hole by pulling the completely assembled carrier pipe using the drill rig and drill pipe. Unlike a conventional drill, a HDD uses drilling mud to provide integrity to the completed hole and lubrication while the carrier pipe is pulled into the hole. Surface disturbance is minimal and limited only to the entry and exit hole and the working space required to layout the equipment and string the pipe. A typical drill entry/exit hole will be limited to a small area (5 ft by 5 ft). A typical work space for equipment layout is 100 ft x 150 ft. Additional space is required to layout and assemble the pipe string.

Equipment required for a HDD is the drill rig itself, mud separators, a small crane to handle drill string, boom trucks to assemble and position the carrier pipe for installation, welding trucks to assemble the pipe, vacuum trucks and pumps to control and circulate drilling fluid.

Excess material generated during the drilling process consists of the material removed from the bore hole during the pilot drill, enlarging process and installation process. The spoils are removed and circulated within the drilling mud. The spoil and drill mud are separated to allow reuse of the drilling mud and excess material would be disposed of offsite.

Table 2.1-3 identifies the apparent crossing required for each pipeline segment. The locations by milepost, crossing length, and crossing method also are listed but are subject to change.

TABLE 2.1-3
Highway, Railway, and Waterway Crossings

MP	Description	Length	Method
Segment 1–Diamond Junction to Breakout			
0.1	Loop 375	500	HDD
5.8	UPRR/Railroad Dr.	200	Jacked Bore
Segment 2–Afton to Apache Pass			
75.7	Old Hwy 10 at Cambray	250	Slick Bore
79.3	I-10 at Akela	550	Jacked Bore
100.6	Burlington Northern Santa Fe (BNSF)Railroad	220	Jacked Bore
101.6	Mimbres River	200	Open Cut
102.4	Silver City Highway	90	Slick Bore
102.8	W. Eighth St.	60	Open Cut
103.8	Peru Mill Road	60	Open Cut
103.9	Southwest Railroad	200	Jacked Bore
104.0	2nd Street (Highway 494)	200	Jacked Bore
156.5	UPRR (Mainline)	210	Jacked Bore
156.6	I-10 in Lordsburg	290	Jacked Bore
159.0	Blacktop Road	60	Open Cut
162.3	Animas Street	60	Open Cut
162.8	Main Street (Highway 494)	65	Slick Bore
173.7	Highway 338 (Animas)	210	Jacked Bore
179.0	Highway 80 (Road Forks)	60	Slick Bore

TABLE 2.1-3 (CONTINUED)
Highway, Railway, and Waterway Crossings

MP	Description	Length	Method
186.1	Cavot Road	180	Open Cut
188.3	Water Channel/Diversion Dike	80	Slick Bore
190.6	San Simon River	1000	HDD
192.3	Portal Road	60	Open Cut
195.3	Wood Canyon Road	60	Open Cut
207.0	Old Fort Bowie Road	60	Open Cut
Segment 3–Marana to Toltec			
335.9	UPRR (Mainline)	165	Jacked Bore
339.2	Missile Base Road	40	Open Cut
341.9	APS Access Road	895	HDD
345.0	Central Arizona Project Canal	500	HDD
345.3	Park Link Drive	40	Open Cut
356.3	Casa Grande Canal	460	HDD
358.1	Oak Lane	110	Open Cut
358.2	Pine Avenue	110	Open Cut
358.4	Vail Road	140	Open Cut
359.4	UPRR (Spur)	265	Jacked Bore
359.7	Casa Grande Picacho Highway (87)	210	Jacked Bore
360.6	UPRR (Mainline)	210	Jacked Bore
360.9	La Palma Road	100	Open Cut
362.1	UPRR (Mainline)	210	Jacked Bore
362.3	Sunshine Boulevard	200	Open Cut
362.6	Main Street	200	Open Cut
363.5	Eleven Mile Corner Road	200	Open Cut
363.9	Bataglia Drive	160	Open Cut
364.0	UPRR (Mainline)	210	Jacked Bore
365.0	Santa Rosa Canal	600	HDD
365.7	Houser Road	60	Open Cut
367.3	Toltec Road	40	Open Cut

TABLE 2.1-3 (CONTINUED)
Highway, Railway, and Waterway Crossings

MP	Description	Length	Method
Segment 4–Bon to Dobbins Road			
389.0	UPRR (Mainline)	260	Jacked Bore
389.1	Maricopa Casa Grande Highway	70	Slick Bore
390.7	Canal	80	Slick Bore
391.1	Murphy Road	50	Open Cut
391.7	Canal	80	Slick Bore
392.3	Hartman Road	80	Open Cut
394.7	White & Parker Road	60	Open Cut
395.9	Porter Road	60	Open Cut
396.8	Maricopa Casa Grande Highway	45	Slick Bore
396.8	UPRR (Mainline)	210	Jacked Bore
397.2	Santa Cruz Wash	700	HDD
398.4	John Wayne Parkway	110	Jacked Bore
398.7	UPRR (Mainline)	160	Jacked Bore
399.7	Highway 238	130	Jacked Bore
410.9	Santa Cruz Canal	400	Open Cut
411.6	Gila River	600	Open Cut
413.2	Beltline Road	200	Slick Bore
417.6	51st Avenue	60	Slick Bore
417.9	Judum Street	40	Open Cut
418.0	Bunn Street	40	Open Cut
419.3	Estrella Road	60	Open Cut
419.8	Carver Road	40	Open Cut
420.3	Elliot Road	85	Slick Bore
420.8	Olney Avenue	40	Open Cut
420.9	McNeil Street	40	Open Cut
421.1	Peidmont Drive	40	Open Cut
421.2	La Miranda Road	40	Open Cut
421.3	Dobbins Road	90	Slick Bore

2.1.3.4 Construction/Ancillary Facilities

Grading. A dozer would be used to grade the respective site to the appropriate elevation previously marked by a land surveyor. It is anticipated that the site would be designed to balance the cut and fill required, preventing the need for import/export of soil. Depending on the amount of grading required, compaction takes place during or after the grading operation. Compaction is achieved by using a roller or hydraulic tamper.

Foundations. Foundations are excavated using a backhoe and shovel, depending on the size. Once excavated, the foundation is framed and secured in the ground ready to be poured. When required, an assigned inspector or inspection consultant would perform testing of concrete. Cement trucks used for foundation work at the breakout facility would be washed out onsite in a designated area. Once the project is complete, concrete rubble would be removed and the washout area is restored to final specifications.

2.1.3.5 Fabrication of Piping Assemblies

Large piping assemblies are typically fabricated and assembled offsite and transported to the construction site when ready for installation. When offsite fabrication is not feasible, piping assemblies would be fabricated at the construction site. This would take place at a nearby staging area or at the actual station/terminal.

The fabrication crew consists of a pipefitter, welder, helper, boom truck operator, and at least one laborer. It is anticipated that two or three fabrication crews would be required, per station, for this project. As part of this process, all butt welds are visually and radiographically inspected. When radiographic inspection is not practical, other methods of nondestructive testing are employed.

The fabrication crew would typically be responsible for assembling the piping components. This includes the installation of valves and other equipment that are part of the piping assembly. Prior to assembly, trenches would be dug within the station to accommodate any underground pipe and electrical conduits required. Once the ditch is ready, previously fabricated portions of pipe would be lowered into the ditch and prepared for assembly with aboveground piping sections. All underground piping spools would be coated or wrapped. This process includes the testing for coating damage.

Large pieces of equipment would be delivered to the site and set once concrete has been poured and given adequate time to dry. The fabrication crew is typically responsible for ensuring the proper installation of large equipment and materials requiring supports or foundations. The pipe fabrication crew would typically utilize one crane, one forklift, one or two welding rigs, one backhoe, and two to three pickup trucks.

2.1.3.6 Typical Construction Equipment and Personnel

The following Tables 2.1-4 and 2.1-5 indicate the typical construction equipment and personnel required for the construction of the pipeline segments and stations/terminals.

TABLE 2.1-4
Typical Construction Equipment and Personnel Required for Pipeline Segments 1, 2, 3, and 4

Equipment	Activity	Personnel
	Grading	
1 Pickup 1 Dozer		1 Foreman 2 Dozer Operators
	Excavation (Normal Terrain)	
1 Pickup 1 Backhoe 1 Dozer w/ Ripper 1 Trencher		1 Foreman 1 Backhoe Operator 1 Dozer Operators 1 Operator 4 Laborers
	Pipe Crew	
5 Welding Rigs 1 Crew Cab 3 Sidebooms 1 Tow Tractor 3 Pick-ups 2 Flatbed Trucks 1 Internal Line-up Clamp		1 Foreman 2 Welders 4 Assistants 3 Sideboom Operators 3 Wrappers 1 Truck Driver 4 Laborers
	Lowering	
1 Pickup 3 Sidebooms 3 Cradles 2 Welding Rigs 1 Water Pump 1 Holiday Detector		1 Foreman 3 Sideboom Operators 2 Welders 2 Assistants 1 Oiler 5 Laborers
	Backfilling	
1 Pickup 1 Crew Cab 1 Dozer 1 Backhoe 1 Backfiller/Front-end Loader		1 Foreman 1 Backfill Operator 1 Dozer Operator 1 Backhoe Operator 1 Oiler 2 Laborers
	Cleanup and Restoration	
2 Pickups 1 Farm Tractor		1 Foreman 1 Dozer Operator 1 Loader Operator 2 Drivers 6 Laborers
	Hydrostatic Testing	
1 Pickup 1 Test Trailer/ Truck 2 Air Compressors 1 Pump 1 Fill Unit 1 Water Filter		1 Foreman 1 Sideboom Operator 1 Pump Operator 1 Hydrotest Technician 1 Driver 4 Laborers

TABLE 2.1-5
Typical Construction Equipment and Personnel Required for Stations and Terminals

Equipment	Activity	Personnel
	Berm Construction	
1 Scraper 1 Bulldozer 11 Dump Trucks 1 Pickup 1 Vibratory Compactor 1 Track-Mounted Excavator 1 Water Truck		1 Foreman Operators Drivers
	Foundation Work	
1 Pickup 5 Portable Generators 1 Cement Truck 1 Boomed Cement Truck 1 Hydrocrane		1 Foreman Operators Drivers Laborers
	Mechanical Work	
2 Pickups 7 Welding Machines 1 Backhoe 3 Sidebooms 1 Hydrocrane 1 50-Ton Crane		1 Foreman Operators Drivers Laborers Welders Assistants
	Tank Erection	
2 20-Ton Cranes 7 100-HP Generators 2 Pickups 3 Articulating Manlifts 1 Water Pump		1 Foreman Operators Drivers Laborers
	Electrical Work	
1 Backhoe 2 Pickups		1 Foreman 1 Operator Laborers
	Finish Grading Road Construction	
1 Blade 2 Dump Trucks 2 Vibrating Compactors 1 Skip Loader 1 Paving Machine 1 Pickup		1 Foreman 1 Operator Laborer

2.2 Applicant Proposed Impact Avoidance and Minimization Measures

A biological evaluation (BE) has been prepared to address impacts to species protected under the Endangered Species Act (ESA). Measures in the BE would minimize and avoid potential impacts to endangered species. Delineation of the waters of the United States would aid in avoiding and minimizing impacts to washes. In addition, the following plans would be implemented during construction: (1) Spill Prevention and Control Plan (SPCP); (2) SWPPP for Construction Activities; (3) Noxious Weed Management and Rehabilitation (NWMRP), and (4) Mitigation Measures and Best Management Practices (Section 2.2.1).

The SPCP (Appendix B) outlines measures the applicant must implement to prevent, control, and minimize impacts from a spill of fuels or other hazardous substances during construction of the proposed project.

The goal of the SPCP is to minimize the potential for a spill through proper training of the personnel, adherence to safety and spill prevention guidelines, strict maintenance of chemical storage areas and equipment, and the housing of spill cleanup and containment materials near the construction area. In addition, the SPCP outlines actions the contractors must take in the event of a spill. These actions must include notification of both a project spill coordinator and the applicant's Construction Monitoring Team (CMT). Spilled material would be immediately and completely contained and cleaned up. The material manufacturer's methods for spill cleanup would be followed as described on the material safety data sheets (MSDS). If the spill is beyond the response capabilities of the contractor, immediate notification of the CMT is required so that an emergency response contractor may be retained. The contractors are required to complete a Spill Report Form for all spills of hazardous substances, regardless of size or location. Mitigation of spills would constitute a ground disturbing activity and would require an archaeological monitor if the spill occurs outside the 100-foot-wide temporary work space corridor. If a spill occurs within or outside the ROW corridor, the Project Compliance Inspector and landowner would be immediately notified. The contractors also are required to notify the CMT of any hazardous conditions that may arise as outlined in the SPCP.

The SWPPP (Appendix C) is designed to manage the quality of stormwater runoff from construction activities associated with the project. The SWPPP is required by the NPDES program, which was established under Section 402 of the CWA to control discharge of pollutants from construction activities impacting greater than 5 acres. Guidelines outlined in the Best Management Practices (BMPs) of the SWPPP consist of implementation and timing of appropriate control measures that would be used during construction to control pollutants in stormwater discharges. Construction supervisors would coordinate all activities to ensure that local controls are in place prior to construction in an active area, and that such areas are stabilized when construction is complete. Sediment traps (silt fences and/or straw bales) would be installed as needed by the contractors, after the clearing and grubbing necessary to install the control but before trench excavation begins in the active portion of the site. Steeper upslope areas have the potential for introducing sediment into stormwater runoff and would be stabilized by tacking straw into the disturbed soil. All straw to be used must be certified as weed free, as detailed in the NWMRP (Appendix D).

The NWMRP contains specific measures that have been proposed to avoid the spread or infestation of noxious weeds as a result of the proposed project. A noxious weed is defined as a plant species that has been introduced to an area following European settlement and has been determined to have negative economic and environmental effects. Noxious weeds are often very successful colonizers of disturbed areas and can completely dominate an area indefinitely. Species deemed as "noxious" are most often inedible to livestock and wildlife and therefore have the overall effect of reducing available forage and habitat.

Federal, state, and local agencies have enacted various legislation to quell the spread of noxious weeds. The applicant is committed to adhering to applicable regulations to prevent the spread of plant pests during construction activities.

2.2.1 Mitigation Measures and Best Management Practices

Mitigation measures and BMPs are included as an integral part of the Proposed Action to minimize resource impacts. Therefore, to minimize potential resource impacts, the mitigation measures outlined in Table 2.2-1 would be implemented for the Proposed Action. The environmental effects described in Section 3 are predicted with the assumption that these measures would be applied. Appropriate mitigation measures and BMPs would occur previous to, or simultaneously with, approved ground disturbing activities.

TABLE 2.2-1
Mitigation Measures Required for Proposed Action

	Mitigation	Reason
	Soil and Water	
SW1	Clean out existing culverts, if necessary, on roads within project area before operations in the spring and at the end of operations in the fall.	To minimize impacts on soils and water resources
SW2	Install and maintain drainage structures in roads to reduce concentration of water runoff. Road drainages shall direct flow into stable areas of vegetation and cover.	To reduce concentration of water runoff, thus minimizing soil detachment and sediment transport
SW3	Install new culvert outfalls with either riprap or another form of energy dissipater, if applicable.	To break up concentrations of water and sediment flow, and prevent road undercutting
SW4	If needed, gravel and/or install erosion structures on roads, where activities cross a drainage.	To minimize sediment delivery into drainage
SW5	Schedule operations, construction, and ditch/road maintenance activities during periods when probabilities for rain and runoff are low. Equipment shall not be operated when ground conditions are such that unacceptable soil compaction or displacement results.	To minimize soil compaction, soil detachment, and sediment transport; to maintain long-term soil productivity
SW6	Dispose of excess material from boring methods offsite.	To minimize impacts on soils and water resources.
SW7	Maintain roads in a manner that provides for water quality protection.	To minimize rutting, failures, side casting, and blockage of drainage facilities, which could cause sedimentation and erosion

TABLE 2.2-1 (CONTINUED)
Mitigation Measures Required for Proposed Action

	Mitigation	Reason
	Vegetation	
V1	Identify and flag staging area boundaries for heavy equipment.	To protect existing vegetation surrounding the project site from damage during construction
	Noxious Weeds	
N1	Clean off-road equipment (with power or high-pressure cleaning) before moving into construction area.	To remove seed source that could be picked up by passing vehicles and limit seed transport into project area
N2	Gravel and fill to be placed in relatively weed-free areas, which are at moderate or high ecological risk to weed invasion, must come from weed-free sources.	To minimize weed spread caused by moving infested gravel and fill material to relatively weed-free locations
N3	Keep active road construction sites that are in relatively weed-free areas and are at moderate or high ecological risk to weed invasion closed to vehicles that are not involved with construction.	To minimize sources of weed seed
N4	New road maintenance programs should include monitoring for noxious weeds along newly constructed maintenance roads. Weed infestations should be inventoried and scheduled for treatment during construction.	To minimize roadside sources of weed seed that could be transported to other areas
	Wildlife	
W1	Perform construction activities outside the breeding season of the cactus ferruginous pygmy owl (CFPO) within potential breeding habitat in Segment 3 (MP 350 to 353). CFPOs generally nest from April to June.	To avoid disturbance to CFPOs potentially breeding in the area (Extremely low possibility of individuals being present.)
W2	To the extent practicable, avoid large mesquites and saguaros within potential breeding or dispersal habitat along Segment 3 (MP 335.89 to 342). Plants to be avoided would be flagged prior to construction.	To minimize disturbance of potential CFPO breeding or dispersal habitat
W3	To the extent practicable, avoid yuccas over 2.5 meter in height within potentially suitable habitat between MP 101 and 150 along Segment 2. Plants to be avoided would be flagged prior to construction.	To minimize disturbance of potential northern aplomado falcon habitat
W4	In roadways or in areas where pedestrian or vehicle traffic is present, provisions would be made to cover any open trenches.	To minimize threats to wildlife as well as the public
	Air	
A1	Adhere to state regulatory standards.	To minimize effects within each airshed
A2	Include a provision in the construction contract to water down access roads and construction areas as needed.	To address the potential problem of fugitive dust during times of no moisture

TABLE 2.2-1 (CONTINUED)
Mitigation Measures Required for Proposed Action

	Mitigation	Reason
	Human Environment	
H1	Conduct heritage surveys in consultation with the State Historic Preservation Office (SHPO) and locate areas to be avoided.	To protect and preserve heritage resources in the project area
H2	If heritage resource sites are discovered during construction and clearing, stop operations in the area immediately and contact appropriate agency.	To protect and preserve heritage resources in the project area
H3	In roadways or in areas where pedestrian or vehicle traffic is present, provisions would be made to cover any open trenches.	To minimize the threat to public safety.
H4	Heavy equipment would be secured along the ROW consistent with jurisdictional requirements.	To minimize the threat to public safety.
H5	During construction, post traffic caution signs at critical locations.	To alert the traveling public and protect them from heavy equipment in construction areas

2.3 Alternatives Considered but Eliminated from Further Analysis

The Proposed Action has been modified and routed to best fit the existing ROW and to minimize impacts to existing resources. The proposed ROW is, to the extent possible, parallel to and adjacent to the existing pipeline that is being replaced. Locating the new pipeline as near as possible to the existing pipeline provides the opportunity to take advantage of areas disturbed by previous construction and, in some locales, to take advantage of existing easements. Making use of previously disturbed areas and existing easements allows the impact to the environment to be as minimal as possible and also allows for cost reductions.

2.3.1 New Route That Does Not Follow the Existing ROW

Early in the process of considering the feasibility of the East Line Expansion Project, consideration was given to constructing the pipeline along a new route that did not specifically closely follow the existing route. It was determined that such a route would not only be more costly but also would cause considerably more impact to the environment than what has become the Proposed Action, and would likely cause heightened environmental concerns from the public.

2.3.2 Trucking

Additional trucking is a consequence of no action. However, planned additional trucking also can be an alternative to gaining additional capacity through pipeline expansion.

Planned additional trucking was considered early in the feasibility process but was not considered for further analysis because of public safety concerns with more trucks on the highways increasing the possibility of accidents, impact to the roadways caused by additional trucks, impacts to the environment cause by additional emissions from the trucks, and the awareness that additional trucking would be a short-term solution and not obviate the need for a new pipeline as the population continues to increase in the Tucson/Phoenix area. Trucking would not achieve the purpose and need of providing a safer and more reliable mode of transporting petroleum products.

2.3.3 Other Considerations

Other considerations, while not constituting individual specific alternatives, were considered during the course of determining the Proposed Action and eliminated from further analysis. These considerations are listed in Table 2.3-1 along with the justification for not including them in the Proposed Action.

TABLE 2.3-1
Other Considerations Eliminated from Further Analysis.

Segment	MP	Alternative Routes Considered but Eliminated From Further Analysis	Proposed Action Route	Justification
1	6.2	Locate breakout terminal closer to Ashley Road	Relocation of new breakout terminal and pipeline endpoint	Avoid impacts to archeological site Maximize distance from Bruce Foods facility
2	80.5–94.5	Continue to follow alongside I-10	Move route to north side of railroad	Minimize railroad crossings
2	103–103.6	Continue route through residential area	Relocate route along existing dirt road, around residential area	Avoid impacts to adjacent residences
2	107.6–156.5	Locate route south of railroad between I-10 and railroad	Relocate route to north side of railroad	Minimize railroad crossings
2	207.43–210	Continue route to MP 210	Reduced route length to terminate at MP 207.43	Avoid encroachment on Fort Bowie National Monument
3	357–360	Continue to follow railroad	Relocate route to north side of Picacho School Road	Avoid industrial buildings and minimize railroad crossings
3	361.7–363	Locate route alongside Hwy 93	Adjust route to follow railroad ROW	Avoid city street encroachments
4	389–391	Continue route straight along railroad	Adjust route to the north	Avoid encroachment on Ak-Chin Indian Reservation

2.4 No Action Alternative

As required by NEPA, a No Action Alternative has been included in this EA for review alongside the Proposed Action (40 CFR §1502.14(d). The No Action Alternative provides a baseline to compare against the effects of the Proposed Action.

Under the No Action Alternative, replacement of approximately 233 miles of pipeline between El Paso and Phoenix would not occur nor would the installation of any associated ancillary facilities occur. No station or terminal upgrades would take place at the El Paso, Deming, Tucson, or Phoenix Stations, including a new breakout facility on Segment 1. SFPP's East Line would continue to operate in its current state, which would not meet the purpose and needs outlined in Section 1.2.

The Phoenix/Tucson region is predicted to experience continued unprecedented growth, which would place added pressure on municipalities to provide adequate petroleum product supplies. With the selection of the No Action Alternative, the current supply of petroleum products would have to satisfy the increasing demands of this growing population. Under the No Action alternative, the use of tanker truckers would continue (and ultimately increase) to provide adequate petroleum supplies to a rapidly increasing population. Potential environmental impacts associated with hauling petroleum products by tanker trucks would increase as a result. These impacts include air pollution, possible spillage, and other traffic accidents during hauling, noise pollution due to truck traffic, and wear on highways and roads caused by repetitive truck passage.